

Appln No. 10/733,824

Amdt date December 7, 2004

Reply to Office action of October 27, 2004

Amendments to the Specification:

On page 2, starting at line 1, replace the paragraph as originally filed with the following amended paragraph:

Prior jar gripping and opening devices have elaborate jaw gripping system with teeth to grasp the lid. The drawback of using the jaws or similar methods is possible damage to the lid from the gripping teeth and a high manufacturing cost due to the intricate parts. Present designs also require the jar to be free of contaminants such as condensation, dirt, and oil. Other drawbacks for existing lid looseners are that they are often hand held, clumsy, expensive, take up valuable countertop space, and/or require the user to go through several steps to—open remove the jar lid.

On page 2, starting at line 10, replace the paragraph as originally filed with the following amended paragraph:

The invention can be used to unscrew difficult to open jar or container lids, especially those that are pressure sealed or the thread threads are caked over with dried sauces. Individuals lacking physical strength, as well as those who suffer from arthritis, or an injury to the hands, wrists, arms or shoulders may find it difficult, if not is impossible, to open a pressure sealed jar. Such individuals may further risk injury to their wrists or body while exerting force to open a jar or container. Also, during opening the jar may also slip off the counter top, and if a glass jar, can shatter and risk injuring someone else. The invention is adapted to accept jars or container lids of

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various sizes and requires no conscience adjustment by the user to do so.

On page 4, at lines 22-24, replace the paragraphs as originally filed with the following amended paragraphs:

FIG. 16 is an expanded side view of the drive belt gears of FIG. 14 15.

FIG. 17 is a top view of the drive belt device of FIG. 14 15.

FIG. 18 is a top view of the expanded drive belt device of FIG. 14 15.

On page 4, starting at line 26, replace the paragraph as originally filed with the following amended paragraph:

FIG. 20 is a side view of the hand held jar lid gripper device of FIG. 18 19.

On page 4, starting at line 28, replace the paragraph as originally filed with the following amended paragraph:

FIG. 22 is a side view of the hand held gripper device of FIG. 20 21.

On page 5, starting at line 14, to page 6, line 8, replace the paragraph as originally filed with the following amended paragraph:

FIG. 2 is a bottom plan view of the gripper device 130 of the invention. Gripper device 130 has a cinching strap 3 mounted at end to a post 8 secured to a support structure or

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base plate 7. The gripper device 130 can be securely mounted on any surface (such as to the underside of a kitchen cabinet or to the side of a structure), in any axis by means, for example by mounting holes 10 in the base plate 7, although other means can be used. The other end 11 of the cinching strap 3 is attached to a pivoting arm 9, which is free to swivel about a pivot 16. Another method of mounting the cinching strap 3 in lieu of utilizing a post 8 is to mount the cinching strap 3 onto the top of ~~the~~ a fixed ridge 12 (or fixed object contact surface). The fixed ridge 12 is attached to the baseplate 7 and can extend from it at about a 90-degree angle. The fixed ridge 12 can either be welded, bolted, or if plastic can be integrated with the base plate 7. The fixed ridge 12 preferably generally follows the arc 132 (shown in dashed lines) of the pivoting arm 9. The fixed ridge's 12 height is preferably roughly equal to the width of the cinching strap 3, which can be set to be roughly equal to the width of an average jar lid 1. The width of the strap should roughly equal the average width of jar lids. Unless the invention is manufactured to grip the base of jar, as opposed to their lids, which would require a wider strap 3. The material of the cinch strap 3 is selected so that it has enough tensile strength and friction. The pivoting arm's 9 travel is preferably limited by an upper stop 14 and a lower 15 stop. The purpose of the upper stop 14 is to allow some slack in the strap 3 so it can accept the jar lid 1. The pivoting arm 9 pivots around the attachment point 16, which can be designed with a bearing or bushing to improve longevity and smoothness of operation. A spring 17 or similar method of

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applying tension is attached to an end of the pivot arm 18, opposite attachment point 11, and at a point 19 located on the base plate 7. The purpose of the spring 17 is to return the pivot arm 9 to the open position (as shown) to allow it to accept a new jar's lid 1 to be opened. The base plate 7 not only holds all the pieces together, but also ensures alignment of the cinch strap 3 with the lid 1 and the fixed ridge 12.

On page 6, starting at line 13, replace the paragraph as originally filed with the following amended paragraph:

FIG. 3 is a top plan view of the gripper device 130 of FIG. 2 used to open a large diameter lid 1 with no adjustment by the user. To use the gripper device, a user places a jar 2 with its lid 1 face down on base plate 7, and pushes the lid into contact with cinch strap 3. This causes the lid 1 to roll down counterclockwise until the cinching strap 3 is ~~taunt~~ taut, which in turn causes the pivoting arm 9 to swing down to take up the slack of the cinching strap 3. By continuing to turn the jar 2 counterclockwise, the lid 1 will soon loosen.

On page 6, starting at line 18, replace the paragraph as originally filed with the following amended paragraph:

FIG. 4 is a top plan view of the gripper device 130 of FIG. 2 used to open a smaller diameter lid 1 with no adjustment by the user. The lid 1 rolls down the fixed ridge 12 counterclockwise until the cinching strap 3 is ~~taught~~ taut and grips the lid 1. Other features and operations of the device 130 are as shown as in FIG. 2.

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On page 6, starting at line 18 and bridging to page 7, line 11, replace the paragraph as originally filed with the following amended paragraph:

FIG. 6 is a front view showing the gripper device 130 of FIG. 2 mounted under a kitchen cabinet 20 for easy access. However, as noted above, the device 130 can be mounted on any axis, say on a closet wall. The materials for the invention can be of any rigid material such as plastic, steel, or aluminum. The invention can optionally be hinged on the edge of the cabinet facing the user. Such a hinge will permit the far edge of the gripper device 130 to swing down a predetermined angle (e.g. about 20 degrees) for easier viewing and use. In this example, the jar 2 would be inserted vertically into the invention till the lid 1 contacts with the base plate 7. If a small diameter jar 2 is inserted, the jar 2 may have to slide along the fixed ridge 12 till the lid 1 makes contact with the cinch strap 3 and then the jar 2 can be rotated to the user's left (jar's 2 counter-clockwise). This rotation will cause the lid 1 to bind with cinching strap 3, pulling the pivot arm 9 toward the lid 1 all while forcing the lid 1 to contact the fixed ridge 12. Once the jar 2 rolls down into a ~~taut~~ taut cinch strap 3, additional rotational force is applied to the jar 2 to loosen the lid 1. Once the jar's 2 pressure seal is broken, the user simply rotates the jar 2 slightly to the right (jar's 2 clockwise) to free it and lowers the jar 2 from the gripper device 130. The spring 17 will return the pivot arm 9 to the open position to accept the next lid 1. The gripper

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device's side 21 facing the user can be used to display instructions for use.

On page 8, starting at line 25 and bridging to page 9, line 14, replace the paragraph as originally filed with the following amended paragraph:

FIG. 13 shows the gripper device 180 designed to accommodate a pipe 32 or bundle of pipes or objects for transport or rotation. FIG. ~~12~~ 13 shows two gripper devices 33, separated by some distance appropriate for the size of load to be carried. The two cinch straps 3 can securely hold a pipe 32, e.g., in a level plane. Placed somewhere between the two gripper devices 33 is an articulating arm 34 with a drive belt 36 system. This articulating arm 34 can be hydraulically 38 powered for extension and retraction. An electric motor driving a jack screw can suffice for extension and retraction of the articulating arm 34. The dashed outlined articulating arm 34 shows the device in the open position to accept a pipe 32. The articulating arm's 34 primary purpose is to serve as a means to mount the drive belt 36. The articulating arm's 34 secondary purpose is pull the pipe 32 inwards toward the cinching straps 3, once contact is made with the drive belt 36. The drive belt's 36 purpose is to rotate the pipe 32 counter-clockwise (in this case), to engage and bind the pipe 32 with the cinching straps 3. The drive belt 36 can be rotated with an electric motor 37 and series of gears. Once the pipe 32 is bound in place, the articulating arm 34 can assist in holding the pipe 32 in the cinching straps 3. The articulating arm 34 is mounted to

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a fixed arm 35, which is then mounted to a back plate 40. The two gripper devices 33 are also mounted to the backplate 40. The back plate 40 can be mounted to a forklift 41, tractor, lifting crane, and robotic arm. The benefit of this arrangement is safer movement and transport of pipe 32, etc. This arrangement will not scour or damage the pipe 32 being gripped if a soft strap is used. Other applications could include the delicate handling of glass test tubes or nuclear rods.

On page 9, starting at line 15, replace the paragraph as originally filed with the following amended paragraph:

FIG. 14 shows a side view of the gripper device 180 as used in FIG. 12 13 that is slightly different in design to accept pipe, etc. (not shown). This plate 33 does not need a backplate 7 (e.g., to limit the insertion of the jar lid 1), as is the case with the earlier described gripper devices designed to loosen lids 1. The plate 33 is to be mounted to the back plate 40.

On page 9, starting at line 20, replace the paragraph as originally filed with the following amended paragraph:

FIG. 15 is a schematic view showing the articulating arm 34 and the drive belt 36 capturing and rotating a pipe 32 in a counter-clockwise direction. The outline of the pivot arm mounting plate 33 is shown behind the articulating arm 34. The drive belt 36 is rotated through a series of gears 43, 45, and 46, as best shown in FIG. 15 16. The electric motor 37 is mounted to the articulating arm 34. The electric motor 37 is

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connected to and rotates the pinion gear 45. The spur gear 46 has a bearing 47 and is mounted to the articulating arm 34. The drive gear 43 for the belt 36 is attached to a splined inner barrel 53 by the means of a setscrew. The fixed arm 35 is mounted to the back plate 40.

On page 11, starting at line 5, replace the paragraph as originally filed with the following amended paragraph:

FIGS. 19 and 20 show a hand held jar opener 190 using the pivot arm design. The pivot 9 76 and fixed ridge 82 are both smaller in dimensions as compared to the cabinet mounted gripper device 130, which may require that the user to take up the excess strap 3 length before use. To use, the user places the jar lid 1 in the tool as shown. The user pulls the loose end of the strap 3 and the jar lid 1 is cradled in place by ridge 79. The height of this cradling ridge 79 is roughly the same as the jar lid 1. Once the loose end of the strap 3 is pulled tight by the user, the jar lid 1 is ready for the user to unscrew it.